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08/035,224 03/22/93 EVANS

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E1M1/0124

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2106

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01/24/94

☒ This application has been examined ☒ Responsive to communication filed on 1-5-94 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), — days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-692. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-25, 28, 30-35, 37-40 are pending in the application.
Of the above, claims 2, 3, 13-25, 28, 30-35 are withdrawn from consideration.
2. ☐ Claims 26, 27, 29, 36 have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1, 4-12, 37-40 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☒ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received
☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

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1. Applicant's election without traverse of the species of Figure 2 in Paper No. 5 is acknowledged.
2. Claims 2, 3, 13-25, 28, and 30-35 are withdrawn from further consideration by the examiner, 37 C.F.R. § 1.142(b) as being drawn to a nonelected species. Election was made **without** traverse in Paper No. 5.
3. The Information Disclosure Statement filed 3-22-93 lists two references, AS and AW, which do not have publication dates. Absent a publication date, it is impossible for the examiner to determine if these references qualify as prior art under 35 USC 102. Please provide their publication dates in the response to this Office Action.
4. Claims 1, 4-12, and 37-40 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

"The cathode" lacks antecedent basis in claim 37. "The inside surface" lacks antecedent basis in claim 4.

"Contact" is indefinite in claim 37 because it is unclear if "contact" refers to electrical or physical contact.

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Claim 4 is confusing. It implies that one porous coating is present on the substrate and another coating is present on the container. This confusion arises because the relationship between the substrate and the container is unclear. If claim 4 indicated that the substrate and container are integral, as shown in the elected species of Figure 2, this confusion would be avoided, and the claim would be definite.

5. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

6. Claims 1, 4, 5, 7, 10-12, 37, 38, and 40 are rejected under 35 U.S.C. § 103 as being unpatentable over Buice in view of Beer. Buice referring to the Figure, Buice shows an electrolytic capacitor including an anode (3), which may be either tantalum or

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aluminum coated with an oxide (see column 2, lines 46 and 50), an electrolyte (4), and a metal container (2).

Buice shows a ruthenium coating formed on a substrate portion of the container which acts as a cathode, rather than a mixed oxide coating.

Beer teaches the use of electrodes coated with mixed oxides. The mix may consist of tantalum oxide (see column 2, line 49) and ruthenium oxide (see column 3, line 5). Given the limited number of metals disclosed, and the relative popularity of tantalum and ruthenium in electrolytic capacitor design, a ruthenium and tantalum mix would be readily envisaged by one skilled in the art. Beer teaches that the mixed oxides produce electrodes with excellent characteristics of resistancy, durability, and efficiency. Beer also suggests their use as cathodes. See column 4, line 47. Further, the oxides would adhere well to the metal casing of Buice. It would have been obvious to replace the ruthenium coating of Buice with the mixed tantalum and ruthenium oxide coating of Beer to form a durable capacitor with low resistance and high efficiency.

7. Claims 6, 9, and 39 are rejected under 35 U.S.C. § 103 as being unpatentable over Buice in view of Beer as applied to claims 1, 4, 5, 7, 10-12, 37, 38, and 40 above, and further in view of Cannon. Buice in view of Beer discloses the invention

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substantially as claimed, but does not mention any specific electrolytes.

Cannon shows that it is known in the art to use sulfuric acid electrolytes in combination with tantalum anodes and cathodes. See column 1, lines 13-16. When the anode of Buice was formed of tantalum to produce a high quality capacitor, it would have been obvious to use a sulfuric acid electrolyte to take advantage of the high compatibility of such electrolytes with tantalum.

8. Claim 8 is rejected under 35 U.S.C. § 103 as being unpatentable over Buice in view of Beer as applied to claims 1, 4, 5, 7, 10-12, 37, 38, and 40 above, and further in view of Katzman. Buice in view of Beer discloses the invention substantially as claimed, but does not mention any specific electrolytes.

Katzman shows that it is old and well known in the art to use an ammonium salt and glycol solvent as an electrolyte in electrolytic capacitors with aluminum anodes. When the anode of Buice was made of aluminum to produce an inexpensive capacitor, it would have been obvious to use an electrolyte of ammonium salt and glycol solvent to take advantage of the high compatibility of such electrolytes and aluminum.

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9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matthews, Yoshida, Yokoyama, and Yagi teach the use of oxide films on cathodes.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Mills whose telephone number is (703) 308-1633. Faxes may be sent to (703) 305-3431 or (703) 305-3432.


BRUCE A. REYNOLDS
SUPERVISORY PATENT EXAMINER
ART UNIT 216


Gregory Mills
January 12, 1994